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RESEARCH SUMMARY

forest sciences
NELSON FOREST REGION

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# Impacts of Spring and Summer Logging on Cavity-Nesting Vertebrates

*By Christoph Steeger and Marlene Machmer*

- **Establish wildlife tree patches around active nests**
- **Attend provincial courses on wildlife tree and biodiversity management**

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## INTRODUCTION

A variety of bird and mammal species use tree cavities for nesting. However, active nest trees (those containing eggs, broods or litters) may be subject to felling during spring and summer forestry operations (Steeger and Machmer 1995). If a tree that contains an active nest is cut down, nestling birds and mammals will inevitably die. Furthermore, a tree that has acquired suitable characteristics for use by cavity-nesters (e.g., large size and stem rot), is often used for breeding and roosting repeatedly over many years, sometimes by several different species. Established nest trees are valuable wildlife habitat components: however, as a result of intensive forestry practices, widespread application of clearcut silvicultural systems, and Workers' Compensation Board (WCB) regulations regarding snag removal, they are often lost from treated sites. This habitat loss puts cavity-nesting wildlife populations under pressure and may constitute a serious threat to the province's biological diversity.

An ongoing study (1992-1996) has been investigating the use of wildlife trees by cavity-nesting vertebrates in the Interior Cedar-Hemlock (ICH) biogeoclimatic zone of the Nelson Forest Region. In the summer of 1995, this research found that four approved cutblocks in the ICHdw subzone of the Deer Creek watershed (Arrow Forest District), together contained 0.70 active nests per hectare (Table 1). Nests of thirteen different species were found, including six species of woodpecker, three species of chickadee, two species of squirrel and the Red-breasted Nuthatch and Brown Creeper. If these cutblocks were logged during May, June, or July, many of the 37 nests containing eggs or nestlings would be unintentionally destroyed. This would happen regardless of the silvicultural system applied because of WCB and *Forest Act* requirements for snags.

| Block No. | Size (ha) | No. Nests | Nests/ha |
|---|---|---|---|
| 5 | 18.6 | 8 | 0.43 |
| 6 | 8.2 | 1 | 0.12 |
| 7 | 17.9 | 21 | 1.17 |
| 8 | 8.1 | 7 | 0.86 |
| **All Blks** | **52.8** | **37** | **0.70** |

**Table 1** Active nests on proposed cutblocks, Deer Creek watershed. (*Steeger and Machmer 1995*)

WCB requires that "all trees, snags and saplings, which are hazardous to workmen and within reach of camp, shop, or other work areas, shall be felled" (IHSR 60:14(2)). The B.C. *Forest Act* of 1979 states that "A person who carries on a timber harvesting, land clearing, or other industrial operation involving timber cutting, shall concurrently fall every snag that is standing in the area of operations" (Section 118 (1)). All of the 37 nest trees in our sample were either dead or live but defective. Therefore, the legislation requires that each tree be felled regardless of the silvicultural system used, unless protected within a wildlife tree patch.

Conversely, the B.C. *Wildlife Act* (section 35) states that "A person who, except as provided by regulation, possesses, takes, injures, molests or destroys (a) a bird or its egg, (b) the nest of an eagle, Peregrine Falcon, Gyrfalcon, Osprey, heron or burrowing owl, or (c) the nest of a bird not referred to in paragraph (b) when the nest is occupied by a bird or its egg, commits an offense."

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How can we reconcile these operational, legal, and ethical forest management problems? What level of impact does forestry have on cavity nester populations in the ICH zone of the Nelson Forest Region and elsewhere? How can these impacts be mitigated? The following information and recommendations are intended to provide a useful perspective for integrating wildlife habitat preservation with operational forestry.

## EXTENT OF PROBLEM

The ICH zone has the highest number of wildlife tree users and red- and blue-listed species of all zones in the Nelson Forest Region (Table 2). Data which relate species diversity and abundance of wildlife tree users to subzones or variants are not yet available.

| Wildlife Tree Users | PP | IDF | MS | ICH | SSFE |
|---|---|---|---|---|---|
| **No. species (spp)** | 58 | 62 | 52 | 64 | 44 |
| **No. red-listed spp** | 0 | 2 | 2 | 3 | 3 |
| **No. blue-listed spp** | 6 | 6 | 3 | 6 | 4 |
| **Total No. listed** | 6 | 8 | 5 | 9 | 7 |

**Table 2**. Number of species of wildlife tree users and red and blue-listed wildlife tree users in biogeoclimatic zones of the Nelson Forest Region.

The annual timber harvest in the ICH zone of the Nelson Forest Region is currently close to 10,000 ha. Since the total area harvested annually from all subzones in the region is approx. 20,000 ha, the ICH contributes approximately 50% (by area) to the annual cut in the region (Deb DeLong, Nelson Forest Region, pers. comm.).

An estimated 1/4 to 1/3 of the annual ICH harvest in the region (i.e. 2500-3300 ha) occurs during the breeding season of most cavity nesters (May, June and July). An estimated 1750 - 2300 active cavity nests are potentially destroyed each year through timber harvesting. This figure is likely conservative because it does not take into account removal of snags and live wildlife trees along harvest area boundaries and during road building. These estimates only address cavity nesters; many other species (open tree and shrub-nesting species) may also be similarly impacted by forestry operations.

The year-round removal of suitable wildlife trees from the landscape affects both current and future users because relatively short rotations prevent the recruitment of such trees into managed stands.

## MITIGATING THE PROBLEM

### The Forest Practices Code

Wildlife tree management has become a requirement under the *Forest Practices Code of British Columbia Act* (FPC). In particular, part 2 of the FPC (Strategic Planning Objectives and Standards) guides the requirement for the establishment of wildlife tree patches. This requirement is further guided by the Strategic Planning Regulation and Operational Planning Regulation, which require that wildlife tree objectives be included in Forest Development Plans. Silviculture and Stand Management Prescriptions are required to describe recognized wildlife trees for the area within or adjacent to the prescription area. The FPC Biodiversity Guidebook provides details about wildlife tree management within the context of stand level biodiversity management.

## RECOMMENDATIONS

1. Surveys should be conducted across the range of all biogeoclimatic zones, subzones and variants in the Nelson Forest Region to collect information on diversity and abundance of wildlife tree users.
2. Schedule timber harvesting operations to avoid the main breeding season (May through July) in areas with a high abundance of wildlife tree users. Many resident cavity nesters also depend on tree cavities for roosting. These cavities are essential for their survival, especially in winter and should be retained during harvesting regardless of season.
3. In areas where spring and early summer logging cannot be avoided, conduct thorough pre-harvest surveys to locate nests and other important biodiversity features. Protect these attributes in "wildlife tree patches". (Steeger *et al.* 1995)
4. Attend the three provincial courses which specifically address the integrative management of wildlife tree users, forestry practices and related worker safety. These courses are: Wildlife/Danger Tree Assessment, Stand Level Biodiversity for Forest Workers; and Stand Level Biodiversity for Forest Managers. The latter course is designed to introduce and interpret the *Biodiversity Guidebook* of the Forest Practices Code. All courses are offered through the B.C. Forestry Continuing Studies Network.

## REFERENCES

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